ABSTRACT

An arrayed waveguide grating type optical multiplexer/demultiplexer circuit in which wavelength dispersion is reduced. An input wave guide (1), a first slab waveguide (2), an arrayed waveguide (3), a second slab waveguide (4) and an output waveguide (5) are connected sequentially. Furthermore, a parabola waveguide (6)is provided between the input waveguide (1) and the first slab waveguide (2), and a taper waveguide (7) is provided between the second slab waveguide (4) and the output waveguide (5). A parabola waveguide length Z_0 exists in a range $Z_{a,0}=Z_0=Z_{p,0}$ determined by a parabola waveguide length $Z_{a,0}$ where the ratio of absolute amplitude between the main peak and the first side peak in the field distribution of far-field of the parabola waveguide (6) has an upper limit of 0.217, and a parabola waveguide length $Z_{p,0}$ where the relative phase of the main peak and the first side peak in the field distribution of far-field has a lower limit of 3.14 radian.